بيانات عن بحث رقم (٧)

عنوان البحث:

Behavior of R.C. Slab with Opening Retrofitted by Ferrocement Overlays: Experimental and Analytical Investigation

Mahmoud Elsayed, Alaa Elsayed, Samah Badawy

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Abstract: This paper presents an experimental and numerical study to evaluate the effectiveness and feasibility of using ferrocement as external overlays for strengthening R.C. slab with a central opening. Twelve R.C slabs of dimension 1000 x 800 x 100 mm were cast and tested experimentally, ten of the specimens were strengthened by ferrocement laminates and the other two were kept as control specimens; with and without opening. The effects of mortar thickness, number, and type of steel wire mesh, ferrocement mortar strength, and strengthening schemes were investigated. A 3-D finite element model using ANSYS package was developed and compared with the available experimental test results to check the validity of the model. A total of 32 numerical models were analyzed to study the different parameters that not covered by the experimental investigation. This study provides information on the viability of using ferrocement laminates in strengthening R.C. slab with cut-out and showed that both flexural behavior and stiffness were significantly enhanced. It was observed that the influence of the openings is vanished by strengthening the test specimens by ferrocement. The ultimate load capacities of the strengthened specimens were increased between 186% and 80% relative to the control specimens with and without opening respectively. The finite element analysis was capable of reasonably estimate the experimental behavior.

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